Comparisons of Job Characteristics

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 59

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Chemistry	4.8	19.8	15.2	<<	Extensive education and/or training may be required
Production and Processing	6.0	18.6	4.9	<<	Extensive education and/or training may be required
Biology	3.7	16.8	24.1	>>	Current knowledge level is likely more than sufficient
Food Production	2.1	15.9	3.5	<<	Extensive education and/or training may be required
Mathematics	9.2	14.5	12.8	<	Expanded education and/or training may be required
Engineering and Technology	5.7	13.9	6.1	<<	Extensive education and/or training may be required
Physics	4.3	13.1	6.2	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 81

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Writing	9.2	13.2	14.8	>	Skill level is likely sufficient
Active Learning	8.7	12.5	14.7	>	Skill level is likely sufficient
Complex Problem Solving	9.1	12.3	11.5	0	Current skill level may be sufficient
Monitoring	9.9	12.3	12.2	0	Current skill level may be sufficient

Quality Control Analysis	5.9	10.5	8.1	<	A higher skill level may be required
Systems Analysis	6.5	10.5	10.6	0	Current skill level may be sufficient
Negotiation	6.8	9.7	6.6	<<	Extensive development of skills in this area may be required
Systems Evaluation	6.4	9.7	9.9	0	Current skill level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Inductive Reasoning	10.2	14.5	18.0	>>	Current ability level is likely more than sufficient
Written Comprehension	11.0	14.5	16.5	>	Current ability level is likely sufficient
Problem Sensitivity	11.1	13.9	16.1	>	Current ability level is likely sufficient
Category Flexibility	9.0	13.5	16.0	>	Current ability level is likely sufficient
Deductive Reasoning	10.6	13.5	15.7	>	Current ability level is likely sufficient
Written Expression	9.8	13.3	15.5	>	Current ability level is likely sufficient
Originality	7.6	11.1	12.5	>	Current ability level is likely sufficient
Fluency of Ideas	7.6	11.0	12.8	>	Current ability level is likely sufficient
Number Facility	6.3	11.0	11.0	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	10.8	11.5	0	Current ability level may be sufficient
Time Sharing	6.6	8.5	5.9	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 97

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise clients or customers	19
Advise governmental or industrial personnel	28
Analyze biological research, test, or analysis data	70
Analyze scientific research data or investigative findings	27
Classify plants, animals, or other natural phenomena	69
Collect scientific or technical data	30
Communicate technical information	4

Conduct analyses or tests of organic compounds	71
Conduct field research or investigative studies	52
Conduct laboratory research or experiments	57
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Cultivate micro-organisms for study, testing, or medical preparations	84
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate scientific research or investigative studies	27
Direct implementation of new procedures, policies, or programs	60
Examine biological or other material specimens under microscope	73
Explain complex mathematical information	30
Follow microbiology procedures	74
Identify nutritional value of foods	87
Isolate and identify micro-organisms	82
Maintain records, reports, or files	5
Make decisions	24
Make presentations	13
Perform statistical analysis	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare sample for laboratory testing, analysis, or microscopy	74
Prepare technical reports or related documentation	22
Recognize plant diseases	72
Recommend further study or action based on research data	60
Record test results, test procedures, or inspection data	48
Resolve engineering or science problems	46
Use biological research techniques	68
Use biological testing instruments	73
Use chemical testing or analysis procedures	54
Use computers to enter, access or retrieve data	3
Use health or sanitation standards	62
Use knowledge of investigation techniques	16
Use laboratory equipment	60
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use microscope	71
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18

Use statistics in food research	95
Use word processing or desktop publishing software	17
Write business project or bid proposals	48
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 78

Focus Occupation: Microbiologists (19-1022)
Associated Occupation: Food Scientists and Technologists (19-1012)

Tools and Technologies	Exclusivity
Autoclave and sterilizer equipment and accessories	12
Chemical evaluation instruments and supplies	10
Chromatographic measuring instruments and accessories	16
Clinical and diagnostic analyzers and accessories and supplies	18
Computers	1
Content authoring and editing software	1
Crystallography equipment	23
Data management and query software	1
Electrical measuring and testing equipment	7
Electrochemical measuring instruments and accessories	9
Fermentation equipment	31
Gas analyzers and monitors	10
Indicating and recording instruments	2
Industry specific software	1
Laboratory baths	24
Laboratory blending and dispersing and homogenizing equipment and supplies	27
Laboratory centrifuges and accessories	13
Laboratory decanting and distilling and evaporating and extracting equipment and supplies	19
Laboratory electrophoresis and blotting system and supplies	26
Laboratory environmental conditioning equipment	24
Laboratory filtering equipment and supplies	51
Laboratory freeze dryers and lyopholizers and accessories	40
Laboratory heating and drying equipment	13
Laboratory incubating equipment	20
Laboratory ovens and accessories	15
Laboratory water purification equipment and supplies	29
Light and wave generating and measuring equipment	4
Pipettes and liquid handling equipment and supplies	16
Sampling equipment	12
Spectroscopic equipment	10
Temperature and heat measuring instruments	6

Viewing and observing instruments and accessories	4
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.